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Quality Engineering Test Report

SERIES: Q-60 60W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY

SAMPLE: Q-60B V1: 5V / 5.5A
V2: 12V / 2A
V3: -5V / 0.5A
V4: -12V / 0.5A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	85VAC~267VAC	P
2	LINE REGULATION	I/P:176~264VAC SPEC: O/P:FULL LOAD V1: ±0.5% V2: ±1% V3: ±0.5% V4: ±0.5%	V1: 0% ~ +0.12% V2: 0% ~ +0.98% V3: 0% ~ 0% V4: +0.05% ~ +0.05%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD V1: ±0.5% V2: ±4% V3: ±1% V4: ±1%	V1: -0.12% ~ +0.12% V2: -0.36% ~ +0.63% V3: -0.12% ~ 0% V4: 0% ~ 0%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:176~264VAC SPEC: O/P:20% TO FULL LOAD V1: ±2% V2: ±6% V3: ±5% V4: ±5%	V1: -0.86% ~ +0.26% V2: -3.23% ~ +5.83% V3: -0.26% ~ +4.74% V4: -0.05% ~ +0.11%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P:FULL LOAD V1: 100mV V2: 120mV V3: 100mV V4: 120mV	V1: 9mV V2: 15mV V3: 4mV V4: 14mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:1A O/P:FULL LOAD	0.74A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:36A O/P: FULL LOAD	31.53A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: V1:-5%~+10% O/P:MIN. LOAD	4.44V~5.79V	P
9	SET UP TIME	I/P:230VAC SPEC:800mS O/P:FULL LOAD	539mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:60mS O/P:FULL LOAD	90mS	P
11	EFFICIENCY	I/P:230VAC SPEC: O/P:FULL LOAD 70%	72.62%	P
12	OVER LOAD PROTECTION	I/P:115VAC SPEC:105%~135% O/P:TESTING	129%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:5.75~6.75V O/P:FULL LOAD	6.15V	P

NEXT

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC SPEC: L-FG--<1mA
N-FG--<1mA</td><td>L-FG:0.65mA
N-FG:0.64mA</td><td>P</td></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC: I/P-O/P: 500VDC/100M Ohms MIN.
I/P-FG: 500VDC/100M Ohms MIN.
O/P-FG: 500VDC/100M Ohms MIN.</td><td>O/P-FG >100M Ohms
I/P-O/P >100M Ohms
I/P-FG >100M Ohms</td><td>P</td></tr>
<tr><td>16</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 3KVAC/ 1 min.(10mA CUT-OFF)
I/P - FG: 1.5KVAC/ 1 min.(10mA CUT-OFF)
O/P - FG: 0.5KVAC/ 1 min.(10mA CUT-OFF)</td><td>I/P-O/P :5.20mA
I/P-FG :5.51mA
O/P-FG :3.64mA</td><td>P</td></tr>
<tr><td rowspan="2">17</td><td rowspan="2">EMS TEST</td><td>EFT TEST:
EN50082-1 IEC1000-4-4</td><td>CRITERIA A OK</td><td>P</td></tr>
<tr><td>SURGE TEST:
EN50082-1 IEC1000-4-5</td><td>CRITERIA A OK</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VACO/P: FULL LOAD
TA:23.7°C BURN-IN DURATION : 2 hrs</td><td>NON BREAK</td><td>P</td></tr>
<tr><td>19</td><td>ENVIRONMENTTEST (SAMPLE A:)</td><td>HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:42.7°C</td><td>AFTER 44 hrs
NON BREAK</td><td>P</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td colspan="2">I/P :230VAC AFTER 2 hr BURN-IN
O/P :FULL LOAD TA:23.7°C
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td>BD1</td><td>BRIDGE DIODE</td><td>62.2°C</td><td>38.5°C</td></tr>
<tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>72.5°C</td><td>48.8°C</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER WIRE</td><td>77.5°C</td><td>53.8°C</td></tr>
<tr><td>D4</td><td>O/P DIODE</td><td>69°C</td><td>45.3°C</td></tr>
<tr><td>C21</td><td>O/P FILTER CAPACITOR</td><td>82.4°C</td><td>58.7°C</td></tr>
<tr><td>D3</td><td>O/P DIODE</td><td>66.7°C</td><td>43°C</td></tr>
<tr><td>D1</td><td>FLY DOIDE</td><td>84.9°C</td><td>61.2°C</td></tr>
<tr><td>RG1</td><td>REGULATOR</td><td>82.4°C</td><td>58.7°C</td></tr>
<tr><td>RG2</td><td>REGULATOR</td><td>86.6°C</td><td>62.9°C</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>56°C</td><td>32.3°C</td></tr>
<tr><td>LF1</td><td>LIME FILTER TRANSFORMER</td><td>51°C</td><td>27.3°C</td></tr>
</table></td><td>P</td></tr>
<tr><td>21</td><td>LIFE CYCLE</td><td colspan="2">SUPPOSE C21 IS THE MOST CRITICAL COMPONENT
I/P:230VACO/P:FULL LOADTa:25°CTc21:83.7°CLife: 20572hrs
I/P:230VACO/P:FULL LOADTa:42°CTc21:98.7°CLife: 7273hrs</td><td>P</td></tr>
<tr><td>22</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">FUSE :3AL/I250V
BRIDGE DIODE :D3SB60
LINE FILTER :TF096-R2 EE-25
TRANSFOMER TF152-R2 EI-40
POWER SWITCHER :2SK727 TO-3P
OUTPUT DIODE :C82M004
OUTPUT CAPACITOR :ELNA 2200uF/10V RJH 105°C
INPUT CAPACITOR :JAMICON 150uF/400V LP 85°C
P.C.B :Q-60-R3 CEM-1 2 OZ SS</td></tr>
</table>

DATE	SAMPLE	NOTE	TEST	APPROVAL
19980608	Q-60	PASS	H.C.LIOU	Max Lin
19990518	Q-60	PASS	H.C.LIOU	Max Lin

PREVIOUS